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Application No. 10/706,715
Amendment dated October 14, 2008
Reply to Office Action of July 15, 2008

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:

a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a maximum clip length between said distal and proximal ends, a maximum clip height perpendicular to said maximum clip length, and a maximum clip width perpendicular to said maximum clip length and said maximum clip height, said maximum clip length being greater than twice said maximum clip height;

an upper support member oriented generally along the mid-longitudinal axis of said clip, said upper support member having a maximum width adjacent said distal end perpendicular to the mid-longitudinal axis in a first plane generally parallel to the mid-longitudinal axis, and having a width less than said maximum width thereof in the first plane over a majority of the length of said clip between said distal and proximal ends;

a lower support member oriented generally along the mid-longitudinal axis of said clip, said lower support member having a maximum width adjacent said distal end perpendicular to the mid-longitudinal axis in a second plane generally parallel to the mid-longitudinal axis, and having a width less than said maximum width thereof in the second plane over a majority of the length of said clip between said distal and proximal ends; and

a connector at said proximal end of said clip joining said upper and lower support members, said connector having a maximum width perpendicular to the mid-longitudinal axis in a first third plane generally parallel to the mid-longitudinal

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axis, and a maximum connector height in a fourth plane perpendicular to the mid-longitudinal axis and the third plane, said maximum connector height being equal to said maximum clip height-said connector joining said upper and lower support members, wherein said clip being is formed of a single piece of wire having a substantially uniform thickness, and has a first free end and a second free end, each of said first and second free ends terminating proximate said proximal end, wherein the first plane, the second plane, and the third plane are parallel to one another, adjacent said distal end of said clip at least one of said maximum width of said upper support member and said maximum width of said lower support member has a width perpendicular to the mid-longitudinal axis in a second plane generally parallel to the first plane is greater than said maximum width of said connector, said distal end has a distal height parallel to said maximum clip height and said proximal end has a proximal width parallel to said maximum clip width, and each of said distal height and said proximal width is twice the thickness of said wire.

2. (currently amended) The clip of claim 1, wherein said wire has a maximum diameter thickness less than or equal to 1.0 mm.
3. (original) The clip of claim 1, wherein said connector is adapted to bias said upper and lower support members toward one another in a closed position.
4. (original) The clip of claim 1, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support members toward one another in a closed position, the force being greater than that needed to move said upper and lower members into contact with one another.
5. (original) The clip of claim 1, wherein said connector includes a coil having an interior.
6. (original) The clip of claim 5, wherein said first end and said second end each terminate proximate said interior of said coil.

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7. (original) The clip of claim 1, wherein said upper and lower support members each include a loop at said distal end.
8. (original) The clip of claim 1, wherein said upper and lower support members each have two parallel longitudinal members with a recess therebetween, said longitudinal members of said upper support member being adapted to generally overlie said longitudinal members of said lower members.
9. (original) The clip of claim 8, wherein said longitudinal members of at least one of said upper and lower members extend along a substantial portion of the length of said clip.
10. (original) The clip of claim 1, in combination with a clip applier for applying the clip to the fluid carrying structure.
11. (original) The clip of claim 10, wherein said clip applier includes a magazine adapted to hold a plurality of clips.
12. (currently amended) A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:
 - a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a maximum clip length between said distal and proximal ends, a maximum clip height perpendicular to said maximum clip length, and a maximum clip width and a minimum clip width perpendicular to said maximum clip length and said maximum clip height, said maximum clip length being greater than twice said maximum clip height;
 - an upper support member oriented generally along the mid-longitudinal axis of said clip between said proximal and distal ends of said clip, said upper support member having a maximum width adjacent said distal end perpendicular to the mid-longitudinal axis in a first plane generally parallel to the mid-longitudinal axis, and having a width less than said maximum width thereof in the first plane over a majority of the length of said clip between said distal and proximal ends;

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a lower support member opposite said upper support member in a vertical plane parallel to the mid-longitudinal axis, said lower support member being oriented generally along the mid-longitudinal axis of said clip between said proximal and distal ends of said clip, said lower support member having a maximum width adjacent said distal end perpendicular to the mid-longitudinal axis in a second plane generally parallel to the mid-longitudinal axis, and having a width less than said maximum width thereof in the second plane over a majority of said clip between said distal and proximal ends; and

a connector at said proximal end of said clip joining said upper and lower support members, said connector having a maximum connector width and a minimum connector width, said maximum connector width and said minimum connector width both being perpendicular to the mid-longitudinal axis in a first third plane generally parallel to the first and second planes and the mid-longitudinal axis, ~~said connector joining said upper and lower support members,~~ said minimum connector width is equal to said minimum clip width, wherein said clip being ~~is~~ formed of a single piece of material having a substantially uniform thickness, and has a first free end and a second free end, each of said first and second free ends terminating proximate said proximal end, at least one of said free ends facing in a direction that is at least one of transverse to the mid-longitudinal axis of said clip and away from said proximal end of said clip, wherein adjacent said distal end of said clip at least one of said maximum width of said upper support member and said maximum width of said lower support member has a width perpendicular to the mid-longitudinal axis in a second plane generally parallel to the first plane is greater than said maximum width of said connector, said distal end has a distal height parallel to said maximum clip height and said proximal end has a proximal width parallel to said maximum clip width, and each of said distal height and said proximal width is twice the thickness of said material.

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13. (original) The clip of claim 12, wherein at least one of said free ends faces a direction generally transverse to the mid-longitudinal axis of said clip.
14. (original) The clip of claim 12, wherein at least one of said free ends faces generally towards said distal end of said clip.
15. (original) The clip of claim 12, wherein said first end and said second end each face away from said proximal end of said clip.
16. (original) The clip of claim 12, wherein said connector is adapted to bias said upper and lower support members toward one another in a closed position.
17. (original) The clip of claim 12, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support members toward one another in a closed position, the force being greater than that needed to move said upper and lower members into contact with one another.
18. (original) The clip of claim 12, wherein said connector includes a coil having an interior.
19. (original) The clip of claim 18, wherein said first end and said second end each terminate proximate said interior of said coil.
20. (original) The clip of claim 12, wherein said upper and lower support members each include a loop at said distal end.
21. (original) The clip of claim 12, wherein said upper and lower support members each have two parallel longitudinal members with a recess therebetween, said longitudinal members of said upper support member being adapted to generally overlie said longitudinal members of said lower members.
22. (original) The clip of claim 21, wherein said longitudinal members of at least one of said upper and lower members extend along a substantial portion of the length of said clip.
23. (original) The clip of claim 12, in combination with a clip applier for applying the clip to the fluid carrying structure.

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24. (original) The clip of claim 23, wherein said clip applier includes a magazine adapted to hold a plurality of clips.

Claims 25 and 26 (cancelled).

27. (previously presented) The clip of claim 1, wherein at least one of said upper support member and said lower support member is enlarged adjacent said distal end of said clip.
28. (previously presented) The clip of claim 1, wherein each of said upper support member and said lower support member is formed of a first leg and a second leg.
29. (previously presented) The clip of claim 28, wherein said first leg and said second leg extend generally parallel to one another from said connector.
30. (currently amended) The clip of claim 29, wherein a gap is formed between said first leg and said second leg, and said gap has a width approximately equal to the diameter thickness of said wire.
31. (previously presented) The clip of claim 12, wherein at least one of said upper support member and said lower support member is enlarged adjacent said distal end of said clip.
32. (previously presented) The clip of claim 12, wherein each of said upper support member and said lower support member is formed of a first leg and a second leg.
33. (previously presented) The clip of claim 32, wherein said first leg and said second leg extend generally parallel to one another from said connector.
34. (currently amended) The clip of claim 33, wherein a gap is formed between said first leg and said second leg, and said gap has a width approximately equal to the diameter thickness of said wire material.
35. (new) The clip of claim 1, wherein said clip has a minimum clip width perpendicular to said maximum clip length and said maximum clip height, and

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said connector has a minimum connector width in the third plane, said minimum connector width being equal to said minimum clip width.

36. (new) The clip of claim 12, wherein said connector has a maximum connector height in a fourth plane perpendicular to the mid-longitudinal axis and the third plane, said maximum connector height being equal to said maximum clip height.